

WHAT IS CLAIMED IS:

1. An image processing device for adjusting color balance in an image to be processed, comprising:

5 a specific color pixel ratio calculation module configured to calculate a ratio of specific color pixels having a color within a first predetermined range in the vicinity of a specific chromatic color, from among all of the pixels present in an image to be processed;

10 a specific color pixel average calculation module configured to calculate an average value of pixel values for the specific color pixels;

a color balance correction value calculation module having a first computation mode for calculating a color balance correction value based on the specific color pixel ratio and the average pixel value for the specific color pixels; and

15 a color balance adjustment execution module configured to execute the color balance adjustment for the entirety of the image to be processed, using the color balance correction value.

2. An image processing device recited in claim 1, wherein

20 the color balance correction value calculated in the first computation mode includes a component that increases with increases in a difference between a predetermined specific color target pixel value for the specific chromatic color and the average pixel value for the specific color pixels, and that increases with increases in the specific color pixel ratio.

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3. An image processing device recited in claim 1 or 2, further comprising:

30 a high luminance pixel average pixel value calculation module configured to calculate an average value of pixel values for a plurality of high luminance pixels which have colors in a predetermined second color range having low-color-saturation and high-luminance, among all of the pixels present in the image to be processed,

the color balance correction value calculation module:

(i) executing computations in the first computation mode if the average value of hue values of the plurality of high luminance pixels is not within a predetermined range in the vicinity of the specific chromatic color,

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(ii) executing computations in a second computation mode for calculating the color balance correction value using the average pixel value of the plurality of high luminance pixels, without using the specific color pixel ratio and the average pixel value of the specific color pixels, if the average 10 value of the hue values of the plurality of high luminance pixels is within the predetermined range in the vicinity of the specific chromatic color.

4. An image processing device recited in claim 1 or 2, wherein:

the specific chromatic color is skin color, and

15 an image data file representing the image to be processed includes photographic scene type information representing a type of photographic scene in the image to be processed;

the color balance adjustment execution module:

(i) executing computations in the first computation mode if the

20 photographic scene type information indicates portrait;

(ii) executing computations in a second computation mode for calculating the color balance correction value using the average pixel value of the plurality of high luminance pixels, without using the specific color pixel ratio and the average pixel value of the specific color pixels, if the photographic 25 scene type information indicates a scene other than portrait.

5. An image processing method for adjusting color balance in an image to be processed, the image processing method comprising the steps of:

(a) calculating a ratio of specific color pixels having a color within a

30 first predetermined range in the vicinity of a specific chromatic color, from among all of the pixels present in an image to be processed;

(b) calculating an average value of pixel values for the specific color

pixels;

(c) calculating a color balance correction value to be used in color balance adjustment; and

5 (d) executing the color balance adjustment for the entirety of the image to be processed, using the color balance correction value,

wherein the step (c) includes a step of executing computations in a first computation mode for calculating a color balance correction value based on the specific color pixel ratio and the average pixel value for the specific value pixels.

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6. A computer program for adjusting color balance in an image to be processed, the computer program causing a computer to implement:

a specific color pixel ratio calculation function for calculating a ratio of specific color pixels having a color within a first predetermined range in the 15 vicinity of a specific chromatic color, from among all of the pixels present in an image to be processed;

a specific color pixel average calculation function, for calculating an average value of pixel values for the specific color pixels;

a color balance correction value calculation function having a first 20 computation mode for calculating a color balance correction value based on the specific color pixel ratio and the average pixel value for the specific color pixels; and

a color balance adjustment execution function for executing the color balance adjustment for the entirety of the image to be processed, using the 25 color balance correction value.

7. An image processing device for adjusting color balance in an image to be processed, comprising:

a specific color pixel average calculation module for calculating an 30 average value for pixel values of specific color pixels having a color within a first predetermined range in the vicinity of a specific chromatic color, from among all of the pixels present in the image to be processed;

a color balance correction value calculation module having a first computation mode for calculating a color value correction value based on the average pixel value of the specific color pixels; and

5    a color balance adjustment execution module configured to execute the color balance adjustment for the entirety of the image to be processed, using the color balance correction value.

8. An image processing device recited in claim 7, wherein  
the color balance correction value calculated in the first computation  
10 mode includes a component that increases with increases in a difference  
between a predetermined specific color target pixel value for the specific  
chromatic color and the average pixel value of the specific color pixels.

9. An image processing device recited in claim 7 or 8, further  
15 comprising:

    a high luminance pixel average pixel value calculation module  
configured to calculate an average value of pixel values for a plurality of high  
luminance pixels which have colors in a predetermined second color range  
having low-color-saturation and high-luminance, among all of the pixels  
20 present in the image to be processed,

    the color balance correction value calculation module:

        (i) executing computations in the first computation mode if the  
average value of hue values of the plurality of high luminance pixels is not  
within a predetermined range in the vicinity of the specific chromatic color,  
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        (ii) executing computations in a second computation mode for  
calculating the color balance correction value using the average pixel value of  
the plurality of high luminance pixels, without using the average pixel value of  
the specific color pixels, if the average value of the hue values of the plurality  
30 of high luminance pixels is within the predetermined range in the vicinity of  
the specific chromatic color.

10. An image processing device recited in claim 7 or 8, wherein:
  - the specific chromatic color is skin color;
  - an image data file representing the image to be processed includes photographic scene type information representing a type of photographic scene

5 in the image to be processed;

the color balance adjustment execution module:

- (i) executing computations in the first computation mode if the photographic scene type information indicates portrait; and
- (ii) executing computations in a second computation mode for

10 calculating the color balance correction value using the average pixel value of the plurality of high luminance pixels, without using the average pixel value of the specific color pixels, if the photographic scene type information indicates a scene other than portrait.